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| 24737 7590 02/22/2010<br>PHILIPS INTELLECTUAL PROPERTY & STANDARDS<br>P.O. BOX 3001<br>BRIARCLIFF MANOR, NY 10510 |             |                      |                     |                  |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/562,276

**Applicant(s)**

FISH ET AL.

**Examiner**

JEFF PIZIALI

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11/23/09; 8/12/09; 2/12/09; 7/29/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 and 16-29 is/are pending in the application.
- 4a) Of the above claim(s) 1-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

#### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Drawings***

2. The drawings were received on 29 July 2008. These drawings are acceptable.

#### ***Election/Restrictions***

3. ***Applicant's election with traverse of Invention 2 (claims 16-29)*** in the reply filed on 12 February 2009 is acknowledged. The traversal is on the ground(s):

*"all the groups of claims in the application can be examined based on a single search without unreasonable burden on the examiner. There is no good sustentative reason for the examiner insisting on this restriction"* (see page 2 of the 12 February 2009 Election). This is not found persuasive.

This is not found persuasive because:

In establishing serious burden in accordance with MPEP §808.02, the examiner must show either separate classification thereof, a separate status in the art when they are classifiable together, or a different field of search.

The examiner has shown the inventions have separate classification:

Where ***Invention 1 (claims 1-14)*** is drawn to a method of determining pixel drive signals, and classified in class 345, subclass 212 (*e.g., methods of controlling the power supplied to display elements*), and

Where ***Invention 2 (claims 16-29)*** is drawn to a display device (claims 16-26) and compensation circuitry (claims 27-29), and classified in class 345, subclass 44 (*e.g., products having light emitting display elements*).

This clearly shows that each invention has attained recognition in the art as a separate subject for inventive effort, and also a separate field of search.

The inventions listed as ***Inventions 1 and 2*** do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Any international application must relate to one invention only or to a group of inventions so linked as to form a single general inventive concept (see MPEP 1850).

As demonstrated by the “X” and “Y” references on the International Search Report, at least one independent claim of the application does not avoid the prior art, therefore, the special technical feature of the application is anticipated by or obvious in view of the prior art.

Consequently, the inventions listed as ***Inventions 1 and 2*** do not relate to a single general inventive concept under PCT Rule 13.1

Moreover, the process for using the product as claimed (*the method of claims 1-14*) can be practiced with another materially different product (*of claims 16-29*).

For example, the process as claimed (*the method of claims 1-14*) can be practiced with another materially different product (*of claims 16-29*) not including at least:

***"A display device comprising an active matrix array of current-addressed light emitting display elements (2) arranged in rows and columns, comprising:"*** as claimed in independent claim 16 (*lines 1-3*),

***"compensation circuitry for modifying target pixel drive currents to take account of a voltage on conductors associated with each of said rows (26) at each pixel resulting from currents drawn from the row conductor by the plurality of pixels and a dependency of a brightness characteristics associated with a corresponding pixel on the voltage on the row conductor at the pixel,"*** as claimed in independent claim 16 (*lines 4-9*),

***"the compensation circuitry comprising: means (60, 62, 64, 66, 70, 72, 74, 76, 78, 80, 82, 90, 92) for applying an algorithm to the target pixel drive currents,"*** as claimed in independent claim 16 (*lines 9-13*),

***"means (100,104) for scaling the target drive currents resulting values using a value representing the dependency of the pixel brightness characteristics on the voltage on the row conductor,"*** as claimed in independent claim 16 (*lines 14-16*);

***"Compensation circuitry for modifying target pixel drive currents for a display device which comprises an active matrix array of current-addressed light emitting display elements***

*arranged in rows and columns having respective row and column conductors,"* as claimed in independent claim 27 (*lines 1-4*),

*"the compensation circuitry comprising: means (60, 62, 64, 66, 70, 72, 74, 76, 78, 80, 82, 90, 92) for applying an algorithm to the target pixel drive currents which represents the relationship between the currents drawn by the pixels in a row and the voltages on the row conductor at a corresponding location locations of the pixels,"* as claimed in independent claim 27 (*lines 4-8*), and

*"means (100,104) for scaling the resulting values using a value representing a dependency of a pixel brightness characteristics on the voltage on the row conductor,"* as claimed in independent claim 27 (*lines 8-10*).

Additionally, the product as claimed (*in claims 16-29*) can be used in a materially different process of using that product (*than the method of claims 1-14*).

For example, the product as claimed (*in claims 16-29*) can be used in a materially different process of using that product (*than the method of claims 1-14*) without at least:

*"A method of determining pixel drive signals to be applied to pixels of an array of light emitting display elements (2) arranged in rows and columns, with a plurality of pixels in a row being supplied with drive current simultaneously along a conductor associated with each of said rows (26), the method comprising:,"* as claimed in independent claim 1 (*lines 1-5*);

*"determining target pixel drive currents corresponding to desired pixel brightness levels based on a model of pixel current-brightness characteristics,"* as claimed in independent claim 1 (*lines 6-7*);

***"modifying the target pixel drive currents to take account of: a voltage on a corresponding the respective row conductor (26) at each pixel within a row resulting from the drive currents drawn by the plurality of pixels and a dependency of the pixel brightness characteristics on the voltage on a corresponding row conductor at the pixel,"*** as claimed in independent claim 1 (*lines 8-12*); and

***"determining the pixel drive signals from the modified target pixel drive currents,"*** as claimed in independent claim 1 (*line 13*).

The requirement is still deemed proper and is therefore made FINAL.

4. ***Claims 1-14 are withdrawn*** from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on *12 February 2009*.

#### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. ***Claims 16-29*** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 16 recites the limitations "***each pixel***" (*line 6*) and "***the plurality of pixels***" (*line 7*).

There is insufficient antecedent basis for these limitations in the claim.

The Applicant is respectfully requested to clarify whether or not a plurality of pixels is a necessary component of the claimed invention.

8. Claim 16 recites the limitation "***the row conductor***" (*line 7*). There is insufficient antecedent basis for this limitation in the claim.

The Applicant is respectfully requested to clarify whether this limitation is intended to be identical to, common to, or distinct from the earlier claimed "***conductors associated with each of said rows***" (*line 5*).

9. The term "**a brightness characteristics**" in claim 16 (*line 8*) is a relative term which renders the claim indefinite.

The terms "**a current-voltage characteristics**" and "**a voltage-current characteristics**" in claim 18 (*lines 6-7*) are each a relative term which renders the claim indefinite.

The term "**a drain-source current characteristics**" in claim 20 (*line 3*) is a relative term which renders the claim indefinite.

The term "**a pixel brightness characteristics**" in claim 27 (*line 10*) is a relative term which renders the claim indefinite.

The Applicant is respectfully requested to clarify whether each of the above limitations is intended to be interpreted as a single element or as a plurality of elements.



10. Claim 16 provides for "**using a value**" (*line 15*), but, since the claim does not set forth any steps involved in this "using" method/process, it is unclear what method/process applicant is intending to encompass.

Claim 18 provides for "**using a drive transistor**" and "**uses a value**" (*line 4*), but, since the claim does not set forth any steps involved in either "using/uses" method/process, it is unclear what method/process applicant is intending to encompass.

Claim 20 provides for "**uses a value**" (*line 2*), but, since the claim does not set forth any steps involved in this "uses" method/process, it is unclear what method/process applicant is intending to encompass.

Claim 21 provides for "**uses a value**" (*line 2*), but, since the claim does not set forth any steps involved in this "uses" method/process, it is unclear what method/process applicant is intending to encompass.

Claim 22 provides for "**uses a value**" (*line 2*), but, since the claim does not set forth any steps involved in this "uses" method/process, it is unclear what method/process applicant is intending to encompass.

Claim 27 provides for "**using a value**" (*line 9*), but, since the claim does not set forth any steps involved in this "using" method/process, it is unclear what method/process applicant is intending to encompass.

A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

The Applicant is respectfully requested to clarify how each of the above elements is being "used."

11. Regarding claim 17, the ellipsis type punctuation marks "... " (line 7) and empty/blank entries (lines 5-6 and 8-9) in the matrix renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by the "... " and the empty/blank matrix entries), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.

The Applicant is respectfully requested to identify all of the matrix values.

12. Claim 18 recites the limitation "***the light emitting display element***" (line 7). There is insufficient antecedent basis for this limitation in the claim.

The Applicant is respectfully requested to clarify whether this limitation is intended to be identical to, common to, or distinct from the earlier claimed "***current-addressed light emitting display elements***" (claim 16, line 2).

13. Claim 20 recites the limitation "***the voltage scaling***" (line 2). There is insufficient antecedent basis for this limitation in the claim.

The Applicant is respectfully requested to clarify whether this limitation is intended to be identical to, common to, or distinct from the earlier claimed "***means for scaling***" (claim 16, line 14).

14. Claim 22 recites the limitation "***the current drawn by a pixel***" (line 7). There is insufficient antecedent basis for this limitation in the claim.

The Applicant is respectfully requested to clarify whether this limitation is intended to be identical to, common to, or distinct from the earlier claimed "*currents drawn from the row conductor*" (claim 16, line 6).

15. The terms/variables "*n*" and "*j*" in claim 23 (line 3) are each a relative term which renders the claim indefinite.

Each of the terms/variables "*n*" and "*j*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The Applicant is respectfully requested to clarify whether each of these terms/variables is intended to represent (*e.g., integers, whole numbers, real numbers, etc.*).

16. Claim 26 recites the limitation "*the values*" (line 3). There is insufficient antecedent basis for this limitation in the claim.

The Applicant is respectfully requested to clarify whether or not a plurality of values is a necessary component of the claimed invention.

17. Claim 27 recites the limitation "*the relationship*" (line 6). There is insufficient antecedent basis for this limitation in the claim.

The Applicant is respectfully requested to clarify whether or not a relationship is a necessary or inherent component of the claimed invention.

18. Claim 27 recites the limitation "***the currents drawn by the pixels***" (*line 7*). There is insufficient antecedent basis for this limitation in the claim.

The Applicant is respectfully requested to clarify whether or not a plurality of pixels (and drawn currents) is a necessary element of the claimed invention.

19. Claim 27 recites the limitations "***the voltages on the row conductor***" (*line 7*) and "***the voltage on the row conductor***" (*line 7*). There is insufficient antecedent basis for this limitation in the claim.

The Applicant is respectfully requested to clarify whether this row conductor limitation is intended to be identical to, common to, or distinct from the earlier claimed "***row and column conductors***" (*line 4*).

The Applicant is respectfully requested to clarify whether a single voltage or a plurality of voltages is a necessary element of the claimed invention.

20. Claim 27 recites the limitation "***the resulting values***" (*line 9*). There is insufficient antecedent basis for this limitation in the claim.

The Applicant is respectfully requested to clarify whether or not a plurality of resulting values is a necessary element of the claimed invention.

21. Regarding claim 28, the ellipsis type punctuation marks "... " (*line 7*) and empty/blank entries (*lines 5-6 and 8-9*) in the matrix renders the claim indefinite because the claim includes

elements not actually disclosed (those encompassed by the "... " and the empty/blank matrix entries), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.

The Applicant is respectfully requested to identify all of the matrix values.

22. The remaining claims are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon rejected base claims.

23. The claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

As a courtesy to the Applicant, the examiner has attempted to also make rejections over prior art -- based on the examiner's best guess interpretations of the invention that the Applicant is intending to claim.

However, the indefinite nature of the claimed subject matter naturally hinders the Office's ability to search and examine the application.

Any instantly distinguishing features and subject matter that the Applicant considers to be absent from the cited prior art is more than likely a result of the indefinite nature of the claims.

The Applicant is respectfully requested to correct the indefinite nature of the claims, which should going forward result in a more precise search and examination.

#### ***Claim Rejections - 35 USC § 103***

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

26. *Claims 16-25 and 27-29* are rejected under 35 U.S.C. 103(a) as being unpatentable over *Inoue et al (WO/2003/027999)* in view of *Akimoto et al (US 2004/0004591 A1)*.

Please note: This Office action relies upon *Inoue et al (US 7,071,635 B2)* as an English language translation of *Inoue et al (WO/2003/027999)*.

Regarding claim 16, *Inoue* discloses a display device [e.g., *Fig. 1*] comprising an active matrix array of current-addressed light emitting display elements [e.g., *Fig. 8: 20*] arranged in rows and columns, comprising: compensation circuitry [e.g., *Fig. 1: C*] for modifying target pixel drive currents [e.g., *desired current values*] to take account of a voltage on conductors [e.g., *Fig. 5: lines*] associated with each of said rows at each pixel [e.g., *Fig. 5: 20; Fig. 8: 10*] resulting from currents [e.g., *Fig. 5: I*] drawn from the row conductor by the plurality of pixels and

a dependency of a brightness characteristics [e.g., *Fig. 9: luminance levels A, A', B*] associated with a corresponding pixel on the voltage on the row conductor at the pixel, the compensation circuitry comprising:

means [e.g., *Figs. 1, 2: 21-23, 27-29*] for applying an algorithm [e.g., *mathematical expressions 1-2*] to the target pixel drive currents *see the entire document, including Column 4, Line 60 - Column 7, Line 9*); and

means [e.g., *Figs. 1, 2: 25, 26, 30, 31*] for scaling the target drive currents using a value representing the dependency of the pixel brightness characteristics on the voltage on the row conductor (*see the entire document, including Column 7, Lines 10-49*).

**Inoue** appears to indicate the power line row conductor [e.g., *Fig. 5: 4*] is driven at one end.

Whereas, the instant application's algorithms are primarily directed to an analysis of a power line row conductor being driven at both ends [e.g., *Fig. 3:  $V_L$ ,  $V_R$* ] (*see Page 10, Lines 9-11*).

Should it therefore be shown that **Inoue** discloses the claimed "applying an algorithm" subject matter with insufficient specificity:

**Akimoto** discloses a power line row conductor [e.g., *Fig. 12: 221*] is driven at both ends [e.g., *Fig. 12: 225*] (*see the entire document, including Paragraph 13*).

**Inoue** and **Akimoto** are analogous art, because they are from the shared inventive field of driving electroluminescent displays.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to substitute *Akimoto's* dual-end driven power line row conductor [e.g., *Akimoto: Fig. 12: 221*] in the place of *Inoue's* single-end power line row conductor [e.g., *Inoue: Fig. 5: 4*], so as to reduce areas occupied by power supply input terminals [e.g., *Akimoto: Paragraph 13*].

This combination, would have inherently resulted in the crosstalk corrections (voltage/current algorithms and scaling) instantly claimed.

Regarding claim 17, neither *Inoue* nor *Akimoto* expressly disclose an algorithm deriving values via a particular mathematical matrix.

However, as earlier discussed, *Akimoto* discloses a power line row conductor [e.g., *Fig. 12: 221*] being driven at both ends [e.g., *Fig. 12: 225*] (*see the entire document, including Paragraph 13*).

This arrangement is identical to the instantly disclosed power line row conductor being driven at both ends [e.g., *Fig. 3:  $V_L$ ,  $V_R$* ] (*see Page 10, Lines 9-11*).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention that the coefficients of matrix M could be derived from the instant application's mathematical expressions (2-3) (*see Page 11*).

Accordingly, it would have been an obvious (*commonly known and understood*) mathematical method to apply an algorithm deriving values corresponding to the multiplication of a vector of the target pixel drive currents for a row of pixels by the inversion of the matrix M, in which



$$M = \begin{bmatrix} -2 & 1 & & & \\ 1 & -2 & 1 & & \\ & \ddots & \ddots & \ddots & \\ & & 1 & -2 & 1 \\ & & & 1 & -2 \end{bmatrix},$$

and wherein a number of rows and columns of matrix M. is equal to a number of pixels in a row.

It would have been obvious to one of ordinary skill in the art at the time of invention, because this particular known *mathematical matrix method* was recognized as part of the ordinary mathematical capabilities of one skilled in the art.

Regarding claim 18, **Inoue** discloses each pixel [*e.g.*, *Fig. 8: 10*] comprises: a current source circuit [*e.g.*, *Fig. 8: TR2, C*] which converts an input voltage to a current using a drive transistor [*e.g.*, *Fig. 8: TR2*], and wherein the means for scaling uses a value including terms derived from: a current-voltage characteristics of the drive transistor; and a voltage-current characteristics of the light emitting display element (*see the entire document, including Column 4, Line 60 - Column 7, Line 49*).

Regarding claim 19, **Inoue** discloses the drive transistor and the light emitting display element of each pixel are in series between the row conductor [*e.g.*, *Fig. 8: 4*] and a common line (*see the entire document, including Column 4, Line 60 - Column 7, Line 49*).

Regarding claim 20, **Inoue** discloses the voltage scaling uses a value including terms derived from a drain-source voltage vs. a drain-source current characteristics of the drive transistor (*see the entire document, including Column 7, Lines 10-49*).

Regarding claim 21, **Inoue** discloses the means for scaling uses a value further including a term derived from a resistance [e.g., Fig. 5:  $R_0$ ,  $R$ ] of a corresponding row conductor (*see the entire document, including Column 4, Line 60 - Column 7, Line 49*).

Regarding claim 22, **Inoue** discloses the means for scaling uses a value  $(1 - \alpha) R \lambda / (1 + \lambda / \mu)$ , where:

$R$  is the resistance of the row conductor between adjacent pixels;

$\lambda$  is a slope of the current vs. voltage curve of the drive transistor;

$\mu$  is a slope of the current vs. voltage curve of the display element; and

$\alpha$  is a ratio of the current drawn by a pixel during a pixel programming phase to a current drawn by the pixel during display (*see the entire document, including Column 4, Line 60 - Column 7, Line 49: wherein taking the "pixel programming phase" to occur during "display,"  $\alpha = I$ , and the value  $(1 - I) R \lambda / (1 + \lambda / \mu) = 0$* ).

Regarding claim 23, this claim is rejected by the reasoning applied in rejecting claim 17. It would have been an obvious (*commonly known and understood*) mathematical method to apply an algorithm deriving values by a recursive operation

$$F(n) = F(n - 1) + \sum_{j=0}^{n-1} I(j) + F(0), \text{ in which:}$$

$F(n)$  is an  $n$ th term of a the vector result of multiplying the vector of the target pixel drive currents for a row of pixels by the inversion of the matrix  $M$ ,

$F(0)$  being the first term; and

$I(j)$  is a target current for the  $j$ th pixel in a row, the first pixel being  $j=0$ .

It would have been obvious to one of ordinary skill in the art at the time of invention, because this particular known *mathematical, recursive operation method* was recognized as part of the ordinary *mathematical* capabilities of one skilled in the art.

Regarding claim 24, this claim is rejected by the reasoning applied in rejecting claim 17. It would have been an obvious (*commonly known and understood*) mathematical method to apply an algorithm deriving values by

$$F(0) = \frac{1}{N+1} \sum_{j=0}^{n-1} (N-j)I(j), \text{ in which:}$$

$N$  is a total number pixels in the row.

It would have been obvious to one of ordinary skill in the art at the time of invention, because this particular known *mathematical method* was recognized as part of the ordinary *mathematical* capabilities of one skilled in the art.

Regarding claim 25, ***Inoue*** discloses the means for scaling comprises a look up table [e.g., Fig. 2: 31] (*see the entire document, including Column 7, Lines 10-49*).

Regarding claim 27, this claim is rejected by the reasoning applied in rejecting claim 16; furthermore, **Inoue** discloses compensation circuitry [e.g., Fig. 1: C] for modifying target pixel drive currents [e.g., *desired current values*] for a display device [e.g., Fig. 1: 2] which comprises an active matrix array of current-addressed light emitting display elements [e.g., Fig. 8: 20] arranged in rows and columns having respective row and column conductors, the compensation circuitry comprising:

means [e.g., Figs. 1, 2: 21-23, 27-29] for applying an algorithm [e.g., *mathematical expressions 1-2*] to the target pixel drive currents which represents the relationship between the currents [e.g., Fig. 5: I] drawn by the pixels in a row and the voltages on the row conductor at a corresponding location of the pixels (*see the entire document, including Column 4, Line 60 - Column 7, Line 9*); and

means [e.g., Figs. 1, 2: 25, 26, 30, 31] for scaling the resulting values using a value representing a dependency of a pixel brightness characteristics on the voltage on the row conductor (*see the entire document, including Column 7, Lines 10-49*).

Regarding claim 28, this claim is rejected by the reasoning applied in rejecting claim 17.

Regarding claim 29, this claim is rejected by the reasoning applied in rejecting claim 25.

27. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Inoue et al** (**WO/2003/027999**) and **Akimoto et al** (**US 2004/0004591 A1**) as applied to claim 25 above, and further in view of **Cok** (**US 2002/0175885 A1**).

Regarding claim 26, neither **Inoue** nor **Akimoto** appears to expressly disclose means for updating the values of the look up table to enable changes in pixel brightness characteristics over time.

However, **Cok** discloses at least one pixel compensation module [*e.g.*, *Fig. 1: 15, 46, 48*], and further comprising

means [*e.g.*, *Fig. 1: 18*] for updating the values of the look up table [*e.g.*, *Fig. 1: 19*] to enable changes in pixel brightness characteristics over time (*see the entire document, including Paragraphs 10-15*).

**Inoue**, **Akimoto**, and **Cok** are analogous art, because they are from the shared inventive field of driving light emitting active-matrix displays.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to combine **Cok's** compensation module [*e.g.*, **Cok: Fig. 1: 15, 46, 48**] and look-up table updating means [*e.g.*, **Cok: Fig. 1: 18**] with **Akimoto's** and **Inoue's** combined invention, so as to improve image quality as the display ages [*e.g.*, **Cok: Paragraphs 1 & 10**].

#### ***Response to Arguments***

28. Applicant's arguments filed on 29 July 2008 have been fully considered but they are not persuasive.

The Applicant contends, "*With regard to the rejection of claims 9 and 23, (term  $n$ ) and claims 4, 17 and 28 (term ...), applicant submits that the use of the term ' $n$ ' is standard mathematical term that are well-known in the art to represent any number of elements ( $n$ ) and the term '...' is a well-known manner, particular in matrix mathematics, to represent values that are repeated between two similar values*" (see Pages 10-11 of the Response filed on 29 July 2008). However, the examiner respectfully disagrees.

The ellipsis type punctuation marks "..." and empty/blank entries in the matrix renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by the "..." and the empty/blank matrix entries), thereby rendering the scope of the claim unascertainable. The Applicant is respectfully requested to identify all of the matrix values. If, as the Applicant contends, values are being repeated; it is respectfully requested that all those values be explicitly shown/claimed.

Each of the terms/variables " $n$ " and " $j$ " is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The Applicant is respectfully requested to clarify what each of these terms/variables is intended to represent (*e.g., integers, whole numbers, real numbers, etc.*).

Applicant's arguments with respect to *claims 16-29* have been considered but are moot in view of the new ground(s) of rejection.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571)272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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